Appl. No. 10/705,572
Docket No. 8681RCR
Amdt. dated 8 July 2008
Reply to Office Action mailed on 9 January 2008
Customer No. 27752

REMARKS

Claim Status

Claims 7-9, 11-15, and 17-25 are pending in the application, all of which are rejected. Herein, Applicants amend no claims; cancel no claims; and add no claims; WHEREUPON Claims 7-9, 11-15, and 17-25 remain to be examined. No additional claims fees are believed to be due.

Alleged Obviousness over Cannon in view Hill and Koslow

Claims 7-9, 11-13, and 17-24 are rejected under 35 USC §103(a) as allegedly being unpatentable over USPN 6,881,348 ("Cannon") in view of USPN 1,782,850 ("Hill") and USPN 6,630,016 ("Koslow"). Applicants respectfully traverse the rejection for the reasons set forth below.

The Office Action states that Cannon teaches a column, i.e. "a housing", having an inlet and an outlet and a filter material disposed in the column comprising a plurality of mesoporous activated carbon filter particles loaded with a cationic polymer. The Action concedes that Cannon does not teach mesoporous wood activated carbon filter particles for bacteria and virus removal. The Action also states that Hill teaches that bacteria are removed from water by activated carbon. The Action also states that Koslow teaches a filter comprising a silver, effective biocide, coated or precipitated onto the filter particles coated with cationic polymers. The Action asserts that the use of known mesoporous activated carbon particles modified with a coating of silver would have been obvious to the skilled person to yield the predictable result of providing potable water by employing the sheer bacteria removal capability of activated carbon, as suggested by Hill, with the inclusion of silver, as suggested by Koslow. The Office Action further asserts that the bacteria removal capability of mesoporous activated carbon is an inherent property of activated carbon.

Cannon's deficiency is not remedied by Hill or Koslow, alone or in combination. Hill discloses a method comprising stirring a suspension of activated carbon in water by "giv[ing] the body of liquid in the settling vessel a slow rotational movement, say, of the

order of one or two turns per hour" (col. 2, lines 98-100). Although Hill states that carbon, while lacking bactericidal properties, is able to remove bacteria (col. 2, lines 56-58), Hill goes on to say that because of the difficulty in freeing water of added carbon, the use of carbon remains impracticable (col. 2, lines 60-73). Hill attempts to address this impractability with the disclosed stirring technique. However, Hill is void of any mention, teaching, suggestion, or motivation to provide a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, wherein at least a portion of said plurality of filter particles is at least partially coated with silver or a silver-containing material, where, among other things, the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms, as recited in Applicants' claims.

Koslow discloses a filter comprising, among other things, a filter medium comprising: (a) a microporous structure comprising active particles; and (b) a microbiological interception enhancing agent comprising a cationic material plus a biologically active metal (col. 1, lines 29-64). Importantly, the structure is described as being microporous in that it has a mean free flow path of less than about 2000 nm (col. 1, line 32; col. 3, lines 42-44), i.e. it has a microporous inter-particle pore volume. In contrast, Applicants filter comprises, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm. Koslow is void of any mention, teaching, suggestion, or motivation to use activated carbon, coated with silver or not, as recited in Applicants claims in a filter for providing potable water, let alone in a filter operable to remove microorganisms.

Applicants submit that they have surprisingly found that mesoporous activated carbon, as claimed, is useful in the removal of bacteria and viruses from water. Applicants demonstrate this, e.g. in the results shown in Figures 7a and 7b, where the performance of a filter according to the invention (mesoporous RGC) is compared to that

of a conventional filter (microporous coconut). As can be seen in Fig. 7a, the inventive filter is effective in removing *E. coli* for about 240 L of cumulative water volume, whereas the conventional filter fails at less than 40 L. As can be seen in Fig. 7b, the inventive filter is effective in removing MS-2 for about 80 to 100 L of cumulative water volume, whereas the conventional filter fails at less than 20 L.

Applicants submit that the Office Action misapplies its assertion that the use of mesoporous activated carbon particles modified with a coating of silver was known and therefore it would have been obvious to the skilled person to yield the predictable result of providing potable water by employing the sheer bacteria removal capability of activated carbon. As demonstrated by Applicants, all activated carbons are not the same, and cannot simply be interchanged with a reasonable expectation of success. Applicants's claims particularly point out and distinctly claim certain activated carbons for use in filter material to remove bacteria and viruses.

Further, the Office Action cites *Ex parte Masham* to support the argument that the recitation "the filter is operable to remove microorganisms..." is an intended use and that as used in Applicants' claims, it does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. However, the Office Action misapplies this case law, as the pending claims are rejected as being allegedly obvious, not as allegedly lacking novelty. *Masham* does not address obviousness at all.

For these reasons, Applicants submit that the obviousness rejection is improper and should be withdrawn.

Alleged Obviousness over Cannon in view Hill and Koslow (the "Base References") in view of Additional References

Claims 14-15 are rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPubN 2004/0040906A1 ("Jagtoyen"). Claim 25 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 6,057,262 ("Derbyshire"). Applicants respectfully traverse the rejection for the reasons set forth below.

Applicants renew their argument above as it relates to the Base References. Applicants submit that deficiencies of the Base References are not remedied by the teachings of any of the Additional References alone or in combination, and that Claims 14-15, and 25 are non-obvious, at least by virtue of their directly claiming or depending on a claim that claims a filter comprises, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms.

For these reasons, Applicants submit that the obviousness rejections are improper and should be withdrawn.

Conclusion

This response represents an earnest effort to distinguish the invention as claimed from the applied reference(s). In view of the foregoing, reconsideration of this application, and allowance of the pending claim(s) are respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is kindly invited to telephone the undersigned attorney.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

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